



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

H-A

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,280	09/07/2004	Shih-Chang Shei	10721-US-PA	5279
31561 7590 02/07/2007 JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE 7 FLOOR-1, NO. 100 ROOSEVELT ROAD, SECTION 2 TAIPEI, 100 TAIWAN			EXAMINER LE, DUNG ANH	
			ART UNIT 2818	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE		
3 MONTHS	02/07/2007	PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/711,280

Applicant(s)

SHEI ET AL.

Examiner

DUNG A. LE

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

In view of Amendment dated 11/21/2006. This is a new ground of rejection.

Claims 1, 6 are rejected under 35 USC 102 (b) as being anticipated by Lin et al. (US 2002/0105076).

Lin teaches bumping process of a LED device (figs. 9-15 and related texts), comprises:

providing a wafer 10 having a plurality of LED chips [0090] and [0004] (diodes as LED devices) thereon; wherein each of the LED chips comprises a plurality of electrodes 24 (aluminum contact pad, [0066-0067]);

forming an UBM (under bump metallurgy) layer 33 on each of the electrodes 24; forming a plurality of posts 35 on the under bump metallurgy layers by a printing process [0090]; and

reflowing the posts. (figs. 13-15 and related texts).

Regarding claim 6, wherein a material of the solder posts is selected from the group consisting of tin (Sn), silver (Ag), copper (Cu) [0087] and alloys thereof.

Claims 3- 4 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Lin et al. (US 2002/0105076) in view of Lee (2002/O104449)/the following remark.

Regarding claim 3, Lin et al. teaches the claimed invention as applied to claim 1 including wherein the printing process comprises the step of applying a solder material onto the pattern plate (figs. 6- 15 and related texts) except for filing the solder material into the openings of the pattern plate by a scraper as cited in current claim 3.

Lee et al. teaches the step of filling the solder material into the openings of the pattern plate by a scraper 200 (para [0022]; figs. 2 and 5 and related texts).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to forming the step of filling the solder material into the of the pattern plate by a scraper in Lin's method, in order to obtain the printing process for simplest application and therefore that would increase production/revenue for company.

Regarding claim 4, wherein after filling the solder material into the openings of the pattern plate, the printing process further comprises removing the pattern plate to form the posts and the solder material in the openings turn into the plurality of the posts 35 (Lin, figs. 13- 15 and related texts).

Claims 5 and 7- 8 are rejected under 35 U.S.C. 103 (a) as being unpatentable ver Lin et al. (US 2002/0105076) in view of Lee et al. (US 2003/0134496).

Lin et al. teaches the claimed invention as applied to claim 1 except for a material of the solder posts comprises Sn/Pb alloy as cited in current claim 5.

Lee discloses a material of the solder posts comprises Sn/Pb alloy [0013].

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply a material of the solder posts comprises Sn/Pb alloy in Lin's method, in order to obtain the best desired mechanical characteristic of the solder post.

Regarding claim 7, wherein the step of forming the UBM layers comprises performing electroless plating (Lee 496' in [0011]).

Regarding claim 8, wherein a material of the UBM layer is selected from the group consisting of titanium (Ti), tungsten (W), Chromium (Cr), Nickel (Ni), Copper (Cu), gold (Au) and alloys thereof(Lee 496 in [0011]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung A. Le whose telephone number is (571) 272-1784. The examiner can normally be reached on Monday-Tuesday and Thursday 6:00am- 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Smith can be reached on (571) 272-1787. The central fax phone numbers for the organization where this application or proceeding is assigned are (571)272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DUNG A. LE
Primary Examiner
Art Unit 2818

